

WHAT IS CLAIMED IS:

1. A data recording method for use in a rewritable phase change type optical recording medium having a phase change type recording layer on its substrate and having a first read only area and a rewritable area of the same multilayer structure in its information recording area, wherein the optical recording medium includes

data and address information in the first read only area and the rewritable area include basic data units having the same logical structure,

auxiliary data capable of distinguishing between read only data and rewritable data is provided in a basic data or in a data unit formed by a plurality of basic data units,

whereby a groove is formed in the rewritable area to have a wobble made so that a center line thereof shows a predetermined amplitude with respect to a recording/readout optical beam scanning direction, and

the data in the first read only area is obtained by a plurality of pre-pits rows made on the substrate,

while a center line of a pre-pits row in the first read only area has a wobble to show an amplitude substantially equal to the amplitude of the groove with respect to the optical beam scanning direction, and consecutive address information is

given by the wobble of the groove and the wobble of the center line of the pre-pits row, and

a carrier frequency due to the wobble of the groove and the wobble of the center line of the pre-pits row is frequency-modulated or phase-modulated with digital information to provide the auxiliary data,

identification information representative of an optical recording medium having a first read only area, said identification information is written in a specified area of the optical recording medium in order to make the recording system recognize a rewritable type medium in which the phase change type recording medium partially has the first read only area, and the identification information is previously written on the substrate of the specified area of the optical recording medium as data such as pre-pits or wobbles,

and at least a starting address of the first read only area is previously written on the substrate of the specified area of the optical recording medium as data such as pre-pits or wobbles,

wherein the data recording method, comprising:

first recognizing step for getting the identification information of the optical recording medium and recognizing that the medium is a rewritable phase change type optical disc having

a first read only area;

a program executing step for gaining access to the first read only area recognized by the first recognizing step to acquire data of an application program for executing the contents of the application program;

an information inputting step for inputting required information in accordance with the application program executed by the program executing step; and

a first recording step for recording the required information inputted through the information inputting step,

wherein the first recording step comprising:

a second recognizing step for recognizing the auxiliary data in an area to be recorded; and

a second recording step for recording the required information of the first recording step, when the area is the rewritable area, while sending an error message to move to another area, when the area is the first read only area.

2. A data recording method according to claim 1, wherein said optical recording medium is a medium which uses fixed-length data as said basic data unit containing said auxiliary data.

3. A data recording method according to claim 1, wherein data in an information recording area of said optical recording medium is an Eight to Fourteen Modulation signal (EFM signal) compatible with a compact disc.

4. A data recording method according to claim 3, wherein a prescription on a rewritable attribution or a read only attribution is placed in an Absolute Time In Pre-groove (ATIP) frame of said optical recording medium.

5. A data recording method according to claim 4, wherein said ATIP information of the optical recording medium is stated in terms of an absolute time of a two-digits BCD code in units of minute, second or frame, and when the most significant bits in eight bits for expression of the minute, second and frame are respectively taken as M₁, S₁ and F₁, said attribution is prescribed in a state associated with any one of (0, 0, 0), (0, 0, 1), (0, 1, 0) and (0, 1, 1) of (M₁, S₁, F₁) in a program area.

6. A data recording method according to claim 3, wherein a prescription on a rewritable attribution or a read only attribution is placed in an Eight to Fourteen Modulation frame

(EFM frame) of said optical recording medium.

7. A data recording method according to claim 6, wherein said attribution of a frame specified by a subcode of said optical recording medium prescribed in a state associated with specific two bits in a Q-channel of said subcode.

8. A data recording method according to claim 3, wherein a prescription on a rewritable attribution or a read only attribution is placed in a block of said optical recording medium.

9. A data recording method according to claim 8, wherein said attribution of the optical recording medium of said block is prescribed in a state associated with specific two bits in a plurality of bits describing mode information included in a header of said block.

10. A data recording method according to claim 1, wherein an attribution, on whether or not the optical recording medium is rewritable, includes an attribution on whether or not to be rewritable only one time and an attribution on whether or not to be writable repeatedly.

11. A data recording method according to claim 3, wherein a program area of the optical recording medium is divided into a plurality of sessions according to a prescription of a multisession format so that some of divided sessions are used for read only while the other sessions are made rewritable.

12. A data recording method according to claim 11, wherein said program area of the optical recording medium is divided into a first session comprising read only data having an ISO9660 file structure and a second session comprising a rewritable type area so that user data and lead-out in said first session are handled as read only data while a lead-in area, a program memory area (PMA) and a power calibration area (PCA) are made rewritable.

13. A data recording method according to claim 11, wherein utilizing the optical recording medium wherein, information representative of whether said session pertains to said rewritable attribution or said read only attribution is included in the lead-in area of each session of said multisession format.

14. A data recording method according to claim 11, wherein

information representative of an optical recording medium having a first read only area and a rewritable area is included in special information stated with ATIP, of said lead-in area or said lead-in area of the first session of said multisession format.

15. A data recording method according to claim 11, wherein information representative of an optical recording medium having a read only area and a rewritable area is included in EFM data of said lead-in area or said lead-in area of the first session of said multisession format.

16. A data recording method according to claim 1, wherein said optical recording medium having a second read only area in the rewritable area is formed by inhibiting re-write after recording of data in addition to said first read only area.

17. A data recording method according to claim 16, wherein, utilizing the optical recording medium wherein, a predetermined updating-unnecessary application program is stored in said first read only area, and an updating-possible or customized application program is stored in said second read only area, and further a user data recording area capable of

recording user data related to at least said application program is provided in said rewritable area.

18. A data recording method according to claim 1, wherein a format of said optical recording medium is a CD-RW format, file management information is written in a lead-in area, a program memory area (PMA) of said optical recording medium, wherein the lead-in area and the program memory area being rewritable.

19. A data erasing method for use in a rewritable phase change type optical recording medium having a phase change type recording layer on its substrate and having a first read only area and a rewritable area of the same multilayer structure in its information recording area, wherein the optical recording medium includes

data and address information in the first read only area and the rewritable area include basic data units having the same logical structure,

auxiliary data capable of distinguishing between read only data and rewritable data is provided in a basic data unit or in a data unit formed by a plurality of basic data units,

whereby a groove is formed in the rewritable area to

have a wobble made so that a center line thereof shows a predetermined amplitude with respect to a recording/readout optical beam scanning direction, and

the data in the first read only area is obtained by a plurality of pre-pits rows made on the substrate,

while a center line of a pre-pits row in the first read only area has a wobble to show an amplitude substantially equal to the amplitude of the groove with respect to the optical beam scanning direction, and consecutive address information is given by the wobble of the groove and the wobble of the center line of the pre-pits row, and

a carrier frequency due to the wobble of the groove and the wobble of the center line of the pre-pits row is frequency-modulated or phase-modulated with digital information to provide the auxiliary data,

identification information representative of an optical recording medium having a first read only area, said identification information is written in a specified area of the optical recording medium in order to make the recording system recognize a rewritable type medium in which the phase change type recording medium partially has the first read only area, and the identification information is previously written on the substrate of the specified area of the optical recording medium

as data such as pre-pits or wobbles,

and at least a starting address of a the first read only area is previously written on the substrate of the specified area of the optical recording medium as data such as pre-pits or wobbles,

wherein file management information on a file included in the first read only area and the rewritable area is written in the rewritable area,

wherein the data erasing method, comprising:
recognizing the identification information representative of that a recording medium as of a rewritable type including a first read only area;

acquiring file management information of the first read only area and transferring the file management information to a storage memory;

erasing file management information of the first read only area and the rewritable area, which is written in the file management area of the rewritable area of the recording medium; and

recording the file management information of the first read only area, transferred to the storage memory, in the file management area.

20. A data erasing method according to claim 19, said optical recording medium is a rewritable type compact disc with a multisession format having a plurality of session areas each including a lead-in area, said data erasing method is a method of erasing areas of data in a rewritable area of a rewritable type compact disc, said method further comprising:

identifying, on the basis of special information recorded in the lead-in area of the first session area, in the compact disc with the multisession format having the plurality of session areas each including said lead-in area, that said compact disc is of a rewritable type having a first read only area;

extracting an attribution about rewrite, write-once or write inhibit from each of said lead-in areas of said plurality of session areas;

when the attribution extracted in said extracting step is about said write inhibit, transferring said file management information of the write inhibit session area to a storage memory;

erasing said file management information recorded in said lead-in area of said first session area; and

recording, in said first session area, said file management information, said file structure of said write

inhibit session area transferred to said storage memory, and a starting address of a rewritable area.

21. A read only data erasing method for use in an optical recording medium in which a phase change type recording layer is formed on substrate and read only data is made by a plurality of pre-pits rows formed on said substrate, comprising:

overwriting data which is different from said read only data in said phase change type recording layer thereby making it impossible to readout said read only data.

22. A data recording method according to claim 1, wherein said optical recording medium further includes file management information on a file included in the first read only area and the rewritable area is written in the rewritable area, an application program data is stored in the first read only area, and a user data recording area capable of recording user data related to at least the application program is provided in the rewritable area.